

12/2/14

**Testimony AGAINST Smart Meters  
House Oversight Standing Committee**

**The use of Smart Meters is big brother; a huge invasion of home privacy.  
This alone is reason enough to provide easy consumer opt out at least....  
Or outlaw them completely at best.**

**Isabelle Terry  
Rockford, MI 49341**

#1



# American Academy of Environmental Medicine

6505 E Central • Ste 296 • Wichita, KS 67206  
Tel: (316) 684-5500 • Fax: (316) 684-5709  
[www.aaemonline.org](http://www.aaemonline.org)

## Executive Committee

January 19, 2012

### President

A.L. Barrier, M.D., FAAO-HNS  
One Hospital Drive  
Columbia, MO 65212

### President-Elect

Amy Dean, D.O.  
1955 Pauline Blvd Ste 100 D  
Ann Arbor, MI 48103

### Secretary

Charles L. Crist, M.D.  
3009 Falling Leaf Ctr, Ste 1  
Columbia, MO 65201

### Treasurer

James W. Willoughby, II, D.O.  
24 Main St.  
Liberty, MO 64068

### Immediate Past President

Robin Bernhoft, M.D., FAAEM

### Advisor

Gary R. Oberg, M.D., FAAEM

### Board of Directors

Craig Bass, M.D.  
Amy Dean, D.O.  
Stephen Genuis, M.D., FAAEM  
Martha Grout, M.D., MD(H)  
Janette Hope, M.D.  
W. Alan Ingram, M.D.  
Derek Lang, D.O.  
Glenn A. Toth, M.D.  
Ty Vincent, M.D.

### Continuing Medical Education

Chairman  
James W. Willoughby, II, D.O.  
24 Main St.  
Liberty, MO 64068

### Executive Director

De Rodgers Fox

Decision Proposed Decision of Commissioner Peevy (Mailed 11/22/2011)  
BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA  
On the proposed decision 11-03-014

Dear Commissioners:

The Board of the American Academy of Environmental Medicine opposes the installation of wireless "smart meters" in homes and schools based on a scientific assessment of the current medical literature (references available on request). Chronic exposure to wireless radiofrequency radiation is a preventable environmental hazard that is sufficiently well documented to warrant immediate preventative public health action.

As representatives of physician specialists in the field of environmental medicine, we have an obligation to urge precaution when sufficient scientific and medical evidence suggests health risks which can potentially affect large populations. The literature raises serious concern regarding the levels of radio frequency (RF - 3KHz - 300 GHz) or extremely low frequency (ELF - 0Hz - 300Hz) exposures produced by "smart meters" to warrant an immediate and complete moratorium on their use and deployment until further study can be performed. The board of the American Board of Environmental Medicine wishes to point out that existing FCC guidelines for RF safety that have been used to justify installation of "smart meters" only look at thermal tissue damage and are obsolete, since many modern studies show metabolic and genomic damage from RF and ELF exposures below the level of intensity which heats tissues. The FCC guidelines are therefore inadequate for use in establishing public health standards. More modern literature shows medically and biologically significant effects of RF and ELF at lower energy densities. These effects accumulate over time, which is an important consideration given the chronic nature of exposure from "smart meters". The current medical literature raises credible questions about genetic and cellular effects, hormonal effects, male fertility, blood/brain barrier damage and increased risk of certain types of cancers from RF or ELF levels similar to those emitted from "smart meters". Children are placed at particular risk for altered brain development, and impaired learning and behavior. Further, EMF/RF adds synergistic effects to the damage observed from a range of toxic chemicals. Given the widespread, chronic, and essentially inescapable ELF/RF exposure of everyone living near a "smart meter", the Board of the American Academy of Environmental Medicine finds it unacceptable from a public health standpoint to implement this technology until these serious medical concerns are resolved. We consider a moratorium on installation of wireless "smart meters" to be an issue of the highest importance.

The Board of the American Academy of Environmental Medicine also wishes to note that the US NIEHS National Toxicology Program in 1999 cited radiofrequency radiation as a potential carcinogen. Existing safety limits for pulsed RF were termed “not protective of public health” by the Radiofrequency Interagency Working Group (a federal interagency working group including the FDA, FCC, OSHA, the EPA and others). Emissions given off by “smart meters” have been *classified by the World Health Organization International Agency for Research on Cancer (IARC) as a Possible Human Carcinogen*.

Hence, we call for:

- An immediate moratorium on “smart meter” installation until these serious public health issues are resolved. Continuing with their installation would be extremely irresponsible.
- Modify the revised proposed decision to include hearings on health impact in the second proceedings, along with cost evaluation and community wide opt-out.
- Provide immediate relief to those requesting it and restore the analog meters.

Members of the Board  
American Academy of Environmental Medicine

#2.



# American Academy of Environmental Medicine

6505 E Central • Ste 296 • Wichita, KS 67206

Tel: (316) 684-5500 • Fax: (316) 684-5709

[www.aaemonline.org](http://www.aaemonline.org)

## Executive Committee

### President

A.L. Barrier, M.D., FAAO-HNS  
One Hospital Drive  
Columbia, MO 65212

### President-Elect

Amy Dean, D.O.  
1955 Pauline Blvd Ste 100D  
Ann Arbor, MI 48103

### Secretary

Charles L. Crist, M.D.  
3009 Falling Leaf Ctr, Ste 1  
Columbia, MO 65201

### Treasurer

James W. Willoughby, II, D.O.  
24 Main St.  
Liberty, MO 64068

### Immediate Past President

Robin Bernhoft, M.D., FFAEM

### Advisor

Gary R. Oberg, M.D., FFAEM

### Board of Directors

Craig Bass, M.D.  
Amy Dean, D.O.  
Stephen Genuis, M.D., FFAEM  
Martha Grout, M.D., MD(H)  
Janette Hope, M.D.  
W. Alan Ingram, M.D.  
Derek Lang, D.O.  
Glenn A. Toth, M.D.  
Ty Vincent, M.D.

### Continuing Medical Education

#### Chairman

James W. Willoughby, II, D.O.  
24 Main St.  
Liberty, MO 64068

### Executive Director

De Rodgers Fox

## American Academy of Environmental Medicine Recommendations Regarding Electromagnetic and Radiofrequency Exposure

Physicians of the American Academy of Environmental Medicine recognize that patients are being adversely impacted by electromagnetic frequency (EMF) and radiofrequency (RF) fields and are becoming more electromagnetically sensitive.

The AAEM recommends that physicians consider patients' total electromagnetic exposure in their diagnosis and treatment, as well as recognition that electromagnetic and radiofrequency field exposure may be an underlying cause of a patient's disease process.

Based on double-blinded, placebo controlled research in humans,<sup>1</sup> medical conditions and disabilities that would more than likely benefit from avoiding electromagnetic and radiofrequency exposure include, but are not limited to:

- Neurological conditions such as paresthesias, somnolence, cephalgia, dizziness, unconsciousness, depression
- Musculoskeletal effects including pain, muscle tightness, spasm, fibrillation
- Heart disease and vascular effects including arrhythmia, tachycardia, flushing, edema
- Pulmonary conditions including chest tightness, dyspnea, decreased pulmonary function
- Gastrointestinal conditions including nausea, belching
- Ocular (burning)
- Oral (pressure in ears, tooth pain)
- Dermal (itching, burning, pain)
- Autonomic nervous system dysfunction (dysautonomia).

Based on numerous studies showing harmful biological effects from EMF and RF exposure, medical conditions and disabilities that would more than likely benefit from avoiding exposure include, but are not limited to:

- Neurodegenerative diseases (Parkinson's Disease, Alzheimer's Disease, and Amyotrophic Lateral Sclerosis.<sup>2-6</sup>
- Neurological conditions (Headaches, depression, sleep disruption, fatigue, dizziness, tremors, autonomic nervous system dysfunction, decreased memory, attention deficit disorder, anxiety, visual disruption).<sup>7-10</sup>
- Fetal abnormalities and pregnancy.<sup>11,12</sup>
- Genetic defects and cancer.<sup>2,3,13-19</sup>
- Liver disease and genitourinary disease.<sup>12,20</sup>

Because Smart Meters produce Radiofrequency emissions, it is recommended that patients with the above conditions and disabilities be accommodated to protect their health. The AAEM recommends: that no Smart Meters be on these patients' homes, that Smart Meters be removed within a reasonable distance of patients' homes depending on the patients' perception and/or symptoms, and that no collection meters be placed near patients' homes depending on patients' perception and/or symptoms.

Submitted by: Amy L. Dean, DO and William J. Rea, MD

#### **Bibliography**

1. Rea WJ, Pan Y, Fenyves EJ, et al. Electromagnetic field sensitivity. *Journal of Bioelectricity*. 1991; 10(1 &2): 243-256.
2. Xu S, Zhou Z, Zhang L, et al. Exposure to 1800 MHZ radiofrequency radiation induces oxidative damage to mitochondrial DNA in primary cultured neurons. *Brain Research*. 2010; 1311: 189-196.
3. Zhao T, Zou S, Knapp P. Exposure to cell phone radiation up-regulates apoptosis genes in primary cultures of neurons and astrocytes. *Neurosci Lett*. 2007; 412(1): 34-38.
4. Nittby H, Brun A, Eberhardt J, et al. Increased blood-brain barrier permeability in mammalian brain 7 days after exposure to the radiation from a GSM-900 mobile phone. *Pathophysiology*. 2009; 16: 103-112.
5. Awad SM, Hassan NS. Health Risks of electromagnetic radiation from mobile phone on brain of rats. *J. Appl. Sci. Res*. 2008; 4(12): 1994-2000.
6. Leszczynski D, Joenvaara S. Non-thermal activation of the hsp27/p38MAPK stress pathway by mobile phone radiation in human endothelial cells: Molecular mechanism for cancer - and blood-brain barrier - related effects. *Differentiation*. 2002; 70: 120-129.
7. Santini R, Santini P, Danze JM, et al. Study of the health of people living in the vicinity of mobile phone base stations: 1. Influences of distance and sex. *Pathol Biol*. 2002; 50: 369-373.
8. Abdel-Rassoul G, Abou El-Fateh O, Abou Salem M, et al. Neurobehavioral effects among inhabitants around mobile phone base stations. *Neurotox*. 2007; 28(2): 434-440.
9. Hutter HP, Moshammer H, Wallner P, Kundi M. Subjective symptoms, sleeping problems, and cognitive performance in subjects living near mobile phone base stations. *Occup. Environ. Med*. 2006; 63: 307-313.

10. Kolodynski AA, Kolodynska VV. Motor and psychological functions of school children living in the area of the Skrunda Radio Location Station in Latvia. *Sci. Total Environ.* 1996; 180: 87-93.
11. Magras IN, Xenos TD. RF radiation-induced changes in the prenatal development of mice. *Bioelectromagnetics.* 1997; 18:455-461.
12. Ingole IV, Ghosh SK. Cell phone radiation and developing tissues in chick embryo - a light microscopic study of kidneys. *J. Anat. Soc. India.* 2006; 55(2): 19-23.
13. Phillips JL, Singh NP, Lai H. Electromagnetic fields and DNA damage. *Pathophysiology.* 2009; 16: 79-88.
14. Ruediger HW. Genotoxic effects of radiofrequency electromagnetic fields. *Pathophysiology.* 2009; 16(2): 89-102.
15. Lee S, Johnson D, Dunbar K. 2.45 GHz radiofrequency fields alter gene expression on cultured human cells. *FEBS Letters.* 2005; 579: 4829-4836.
16. Demisia G, Vlastos D, Matthopoulos DP. Effect of 910-MHz electromagnetic field on rat bone marrow. *The Scientific World Journal.* 2004; 4(S2): 48-54.
17. Lai H, Singh NP. Magnetic-field-induced DNA strand breaks in brain cells of the rat. *Environmental Health Perspectives.* 2004; 112(6): 687-694. Available from: <http://ehp03.niehs.nih.gov/article/info:doi/10.1289/ehp.6355>
18. Mashevich M, Foldman D, Kesar, et al. Exposure of human peripheral blood lymphocytes to electromagnetic fields associated with cellular phones leads to chromosomal instability. *Bioelectromagnetics.* 2003; 24: 82-90.
19. Ban R, Grosse Y, Lauby-Secretan B, et al. Carcinogenicity of radiofrequency electromagnetic fields. *The Lancet Oncology.* 2011; 12(7): 624-626. Available from: [http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045\(11\)70147-4/fulltext?\\_eventid=login](http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(11)70147-4/fulltext?_eventid=login)
20. Lubec G, Wolf C, Bartosch B. Amino acid isomerisation and microwave exposure. *Lancet.* 1989; 334: 1392-1393.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

JUL 16 2002

OFFICE OF  
AIR AND RADIATION

"The FCC's current exposure guidelines, as well as those of the Institute of Electrical and Electronics Engineers (IEEE) and the International Commission on Non-ionizing Radiation Protection, are thermally based, and do not apply to chronic, non-thermal exposure situations. They are believed to protect against injury that may be caused by acute exposures that result in tissue heating or electric shock and burn."

"The exposure guidelines did not consider information that addresses non-thermal, prolonged exposures, i.e., chronic/prolonged, low-level (non-thermal) exposures."

"The FCC's exposure guidelines are considered protective of effects arising from a thermal mechanism but not from all possible mechanisms. Therefore the generalization by many that the guidelines protect human beings from harm by any or all mechanisms is not justified."

Sincerely,

A handwritten signature in black ink, appearing to read "Norbert N. Hankin".

Norbert Hankin  
Center for Science and Risk Assessment  
Radiation Protection Division

(Excerpted from Full Statement)

# A Comparison of Wireless Device Emissions to the Scientific Research

**Radiation Exposure**  
10,000,000,000

**FCC Exposure Guidelines, 30 min public exposure, based solely on thermal effects**

500,000,000	2 feet from a microwave oven
90,000,000	iPads and WiFi Laptops. Direct Body Contact
60,000,000	DNA damage in cells
50,000,000	Impaired nervous system activity
40,000,000	Slowed memory/alterd immune function in children
40,000,000	Changes in hippocampus, part of brain memory, learning.
30,000,000	Irreversible infertility (in mice at 3 generations)
35,000,000	1 foot from a WiFi enabled Laptop
20,000,000	Double-strand DNA damage
13,000,000	2x rate of leukemia in adults
12,500,000	Affected kidney development
10,000,000	Headaches, dizziness, irritability, fatigue, weakness, insomnia, chest pain, difficulty breathing, indigestion
10,000,000	Affected functions of the immune system
8,000,000	Emotional behavior changes (free-radicals)
6,000,000	Change in calcium ion efflux from brain tissue
5,000,000	10 feet from a wireless smart meter
5,000,000	Decreased sperm motility and increased DNA fragmentation
3,500,000	Pathological leakage in blood-brain barrier
3,000,000	Affected neurological system, brain function
2,200,000	Reduced density and number of young in bird populations
2,000,000	Decreased survival in children with leukemia
2,000,000	2x rate of leukemia in children
1,700,000	Irreversible infertility (in mice at 5 generations)
1,600,000	Negatively affected memory, attention, motor function of schoolchildren
1,500,000	Reduced memory function
1,300,000	Decreased cognition, well-being
1,000,000	10 feet from a DECT cordless phone base unit or WiFi Router
1,000,000	100 yards from a cell tower
700,000	Sperm head abnormalities in mice
638,000	Decreased cognitive function
500,000	Adverse neurological, cardiovascular symptoms and cancer risk
500,000	10x increased risk of cancer in women, with short latency.
400,000	10 feet from a WiFi enabled Laptop
300,000	Headaches, memory changes, depressive symptoms, sleeping problems
100,000	Behavioral disruption
100,000	Significant increase in breast cancer and brain tumours.
100,000	Fatigue, headaches, sleeping problems
100,000	Headaches, concentration problems, sleeping problems
50,000	Headaches, fatigue, cardiovascular issues
50,000	In adults (30-60), chronic exposure caused sleep disturbances
30,000	In children and adolescents (8-17 yrs) behavioral problems in school
30,000	In children and adolescents (8-17 yrs) headaches, irritation, concentration difficulties in school
20,000	Sleep disorders, abnormal blood pressure, nervousness, fatigue, joint pain, digestive disorders, fewer schoolchildren promoted
6,000	Fatigue, depressive tendency, sleeping disorders, concentration difficulties, cardiovascular problems
5,000	Decreased cell proliferation
3,000	Significantly reduced sperm count
1	Low Radiation Natural Environments

**Researcher**  
**FCC**

**Year**  
**1986**

Phillips	1998
Dumansky	1974
Chiang	1989
Tattersall	2001
Magras	1997
Khalid	2011
Kesari	2008
Dolk	1997
Pypasopoulou	2004
Simonenko	1998
Novoselova	1999
Akoev	2002
Dutta	1986
Tell	2013
Avendano	2010
Salford	2003
Vorobyov	2010
Balmori	2009
Hocking	2000
Hocking	1996
Magras	1997
Kolodynski	1996
Nitby	2007
Zwamborn	2003
Olitoloju	2010
Papageorgiou	2011
Khurana	2010
Wolf	2004
Rassoul et al	2000
Navakatikan	1994
Oberfeld	2008
Navarro	2003
Hutter	2006
Kundi	2009
Mohler	2010
Thomas	2010
Heinrich	2010
Alpeter	1995
Oberfeld	2004
Velizarov	1999
Behari	2006